Initial Antihypertensive Prescribing in Relation to Blood Pressure Among Medicaid and Medicare Recipients

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Introduction

- Early antihypertensive initiation leads to better outcomes for patients with newly diagnosed hypertension (HTN)
- However, few real-world studies have assessed initial antihypertensive treatment regimens in the context of baseline blood pressure (BP)
- We examined initial antihypertensive treatment patterns among Medicare and Medicaid recipients with linked claims and EHR in the OneFlorida Data Trust

Methods

Study Design and Data Source

- Cross-sectional study using linked electronic health record (EHR) and Medicare or Medicaid claims from 2012 through 2020

Study Population

- Medicare or Medicaid recipients, aged ≥18 years, diagnosed with HTN, who filled ≥1 first-line antihypertensive class with no evidence of antihypertensive fills during the prior year, and who had ≥1 year continuous insurance enrollment prior to first antihypertensive fill
- For those with linked EHR data, we identified the outpatient visit at which the index anti-hypertensive regimen was prescribed (matching on drug, dosage form, and provider NPI)

Measurement of Study Variables

- Office BP from the prescribing visit was categorized per current U.S. guidelines, using the highest criteria met by either SBP or DBP (normal: <120/80; elevated: 120-129/<80; stage 1: 130-139/80-89; stage 2: ≥140/≥90 mmHg)
- Number of antihypertensives initiated was calculated form all antihypertensives started on the earliest fill date (incl. first and second-line)

Analyses

- Stratifying by insurer (Medicare and Medicaid), we assessed: 1) prevalence of initiation of first-line classes across BP category; and, 2) number of drugs started by BP category
- Logistic regression was used to estimate age-adjusted odds of combination vs. monotherapy, per 10 mmHg increase in systolic BP (SBP) or diastolic BP (DBP)

Conclusions

- We observed similar initial prescribing class patterns among Medicaid & Medicare recipients across baseline BP
- In the Medicare population, age-adjusted use of combination therapy was less likely at higher baseline blood pressure
- For future studies, examination of other factors such as comorbidities, and social factors must be investigated in order to understand the limited use of combination therapy in stage 1 and 2 hypertension despite current clinical guidelines.

Figure 1. Initial antihypertensive prescribing, stratified by insurer and BP category.

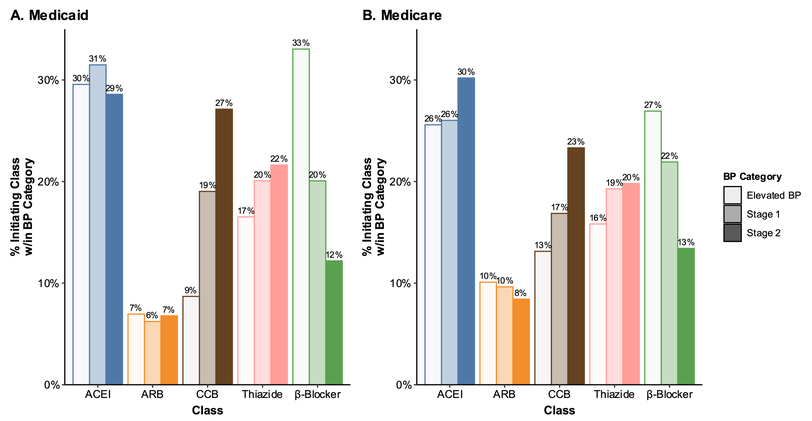

Figure 2. Percent of patients initiating monotherapy, 2, or 3+ antihypertensives, by insurer and BP category.

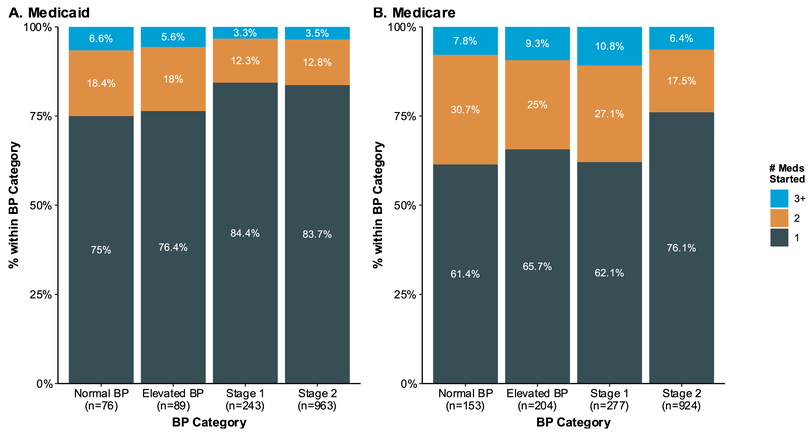

Figure 3. Age-adjusted odds ratios (95% CIs) for likelihood of initiating combination therapy per each 10 mmHg increase in BP, stratified by insurer.

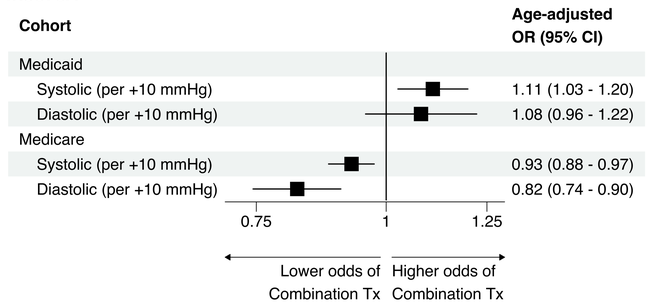

Table. Baseline cohort characteristics

Characteristic	Medicaid (n=1,371)	Medicare (n=1,558)
Age, years (mean ± SD)	43.6 ± 13.0	67.4 ± 14.6
Women	874 (63.7%)	869 (55.8%)
Race:		
Black or African American	783 (57.1%)	451 (28.9%)
White	531 (38.7%)	1,011 (64.9%)
Other	57 (4.1%)	96 (6.2%)
Hispanic	52 (3.8%)	57 (3.7%)
Comorbidities:		
Diabetes	293 (21.4%)	438 (28.1%)
Atrial Fibrillation	26 (1.9%)	132 (8.5%)
Prior stroke or TIA	19 (1.4%)	66 (4.2%)
Heart failure with reduced EF	25 (1.8%)	41 (2.6%)
Coronary Heart Disease	57 (4.2%)	149 (9.6%)
Blood Pressure Category:		
Normal Blood Pressure	76 (4.17%)	153 (26.33%)
Elevated Blood Pressure	89 (4.98%)	204 (37.54%)
Stage 1 Hypertension	243 (14.95%)	277 (11.04%)
Stage 2 Hypertension	963 (58.79%)	924 (45.12%)

Results & Discussion

- Initial antihypertensive classes were similar between cohorts, varying little by BP for ACEIs, ARBs, and thiazides (**Fig 1**)
- In contrast, CCBs and β-blockers varied substantially by BP category (**Fig 1**)
- In unadjusted analyses, initial mono-therapy regimens were most prevalent in those with highest baseline BP (**Fig 2**)
- In age-adjusted analyses, the likelihood of initial combination therapy was 40% greater among Medicare patients than Medicaid patients
- Among Medicare recipients, each 10 mm Hg greater systolic and diastolic BP were associated with lower odds of combination therapy **(Fig 3**)
- Conversely, among Medicaid recipients systolic BP (but not diastolic BP) was associated with higher odds of combination therapy (**Fig 3**)
- Monotherapy initiation dominates prescribing patterns despite guidelines recommending combination therapy for elevated BP, particularly stage 2 HTN

Limitations

- Cohorts were derived from Medicaid & Medicare, possibly limiting generalizability
- We required an antihypertensive fill, thus our data may not be generalizable to all prescribing patterns
- We attempted to ensure antihypertensives were initiated for HTN, but no definitive indication was available; thus, it is possible some patients started antihypertensives for other indications

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